

Moulting, male pursuit and brooding by *Telamonia dimidiata* (Araneae: Salticidae: Plexippina) in Karnataka (version 2)

Abhijith A. P. C.¹ and David E. Hill²

¹ Indraprastha Organic Farm, Kalalwadi Village, Udboor Post, Mysuru-570008, Karnataka, India, *email* abhiapc@gmail.com

² 213 Wild Horse Creek Drive, Simpsonville SC 29680, USA, *email* platycryptus@yahoo.com

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Telamonia dimidiata (Simon 1899) is a relatively large (males ~12.5 mm body length) plexippine jumping spider that is widely distributed in the tropical forests of south and southeast Asia (Ahmed et al. 2019; WSC 2019). Here we document observations of *T. dimidiata* at Indraprastha organic farm, Mysuru, Karnataka, India (Figures 1-3), to include more recent observations of cohabitation (Figures 4-5).

Moulting. A female *T. dimidiata* was observed while suspended from her dragline after moulting (Figure 1). Although characteristic of many different spiders, molting while suspended from the dragline was only recently reported for a plexippine salticid (cf. *Anarrhotus* sp., Hill et al. 2019).

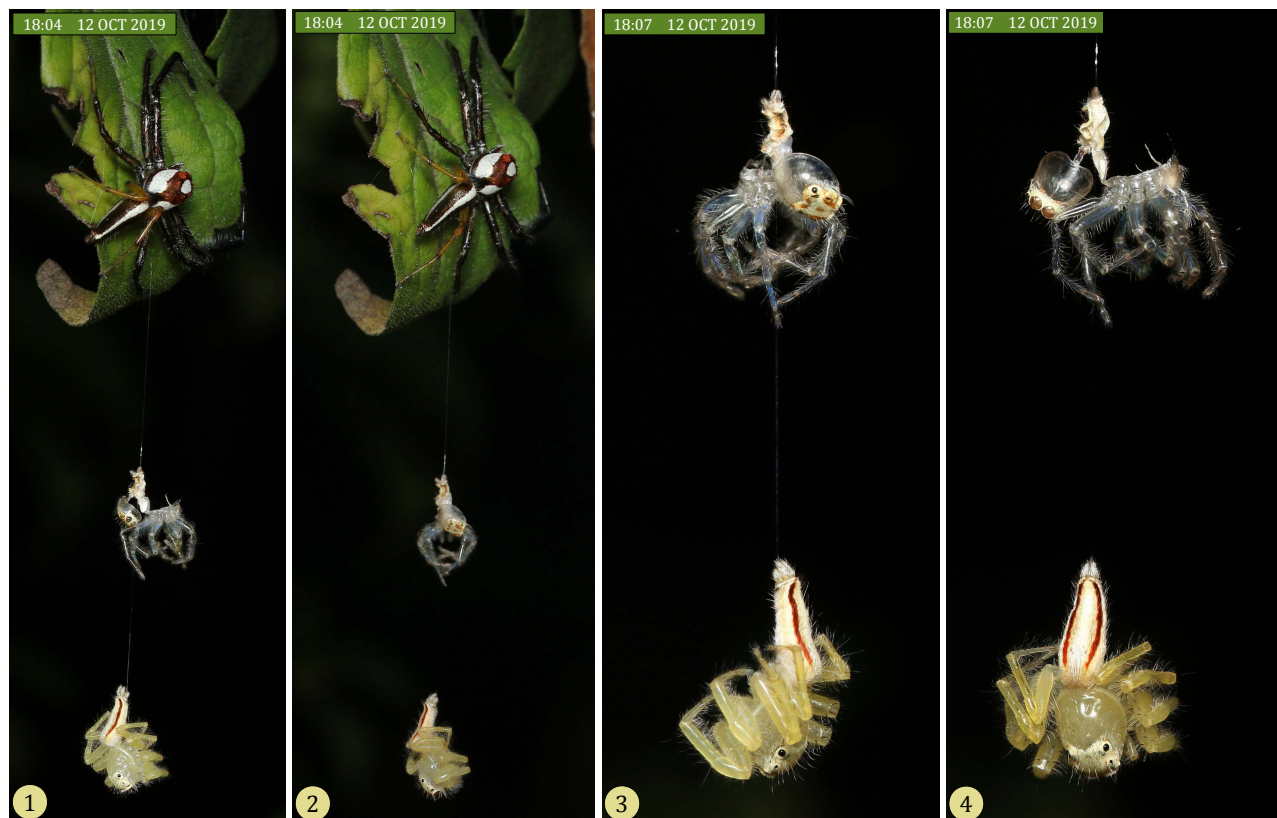


Figure 1. Recently moulted female *Telamonia dimidiata* suspended from her dragline, below her exuvium and an adult male.

Male pursuit. An adult male *T. dimidiata* was first observed on a leaf above this recently moulted female (Figures 1:1-2, 2:1). Subsequently this male followed the dragline of the female down to her exuvium, and then down to a lower leaf occupied by the female (Figure 2:2-7).



Figure 2 (continued on next page). Adult male *Telamonia dimidiata* with recently moulted female. 2-4, Male moving down to female exuvium. 5-7, Male climbing down to leaf occupied by female. 8-9, Male under leaf with female.



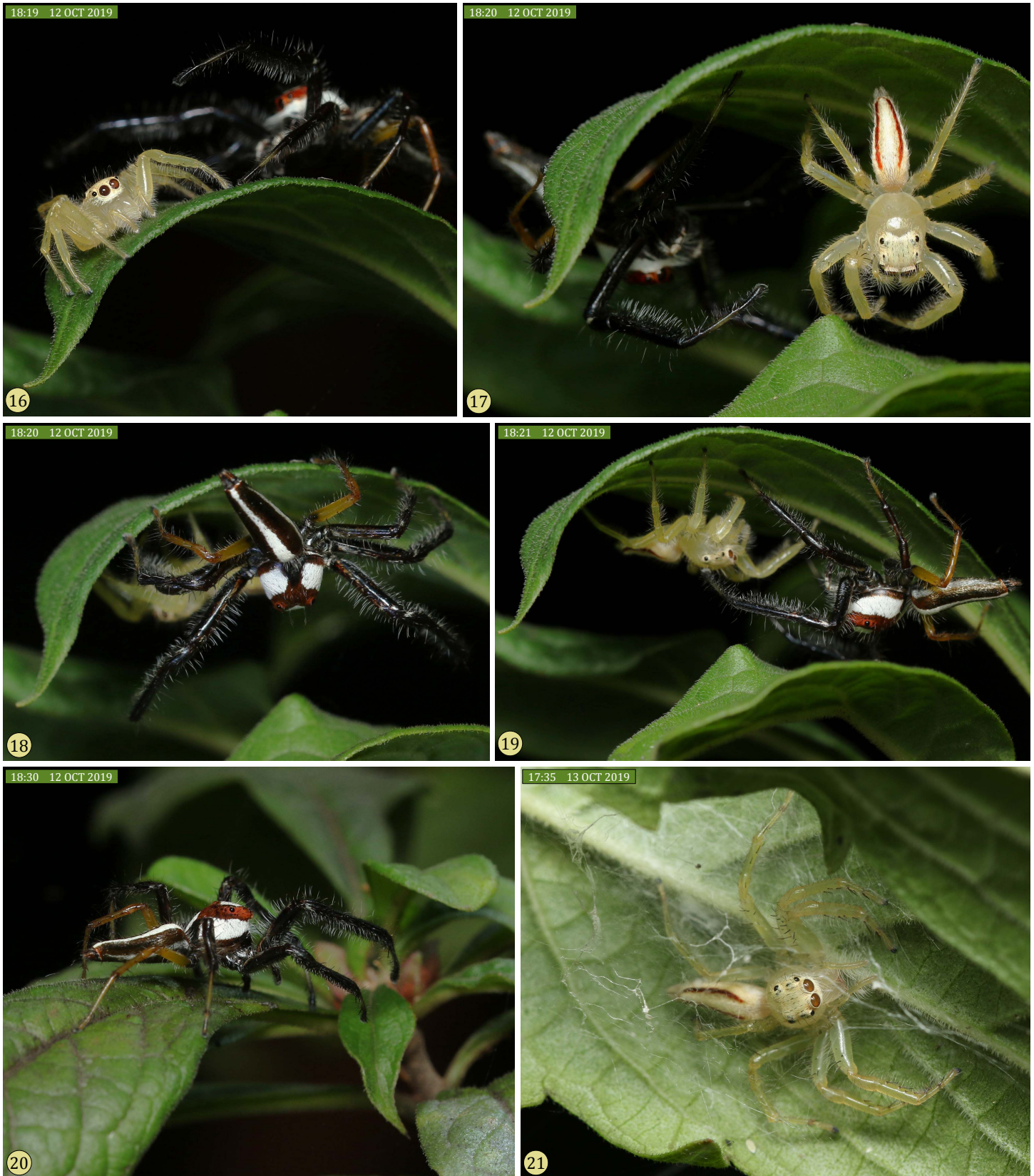


Figure 2 (continued from previous page). Adult male *Telamonia dimidiata* with recently moulted female. **16-20**, Male moving about in the vicinity of the female. **21**, Female in thin silk shelter (*resting sac* or *retreat*) on the next day. Both sexes construct temporary nocturnal retreats like this one (Ahmed et al. 2019).

The adult male approached the recently moulted female as if to mate twice (Figure 2:8-13 and Figure 2:18-19), but no mating was observed. The female may have been immature. As darkness approached this female climbed up to the leaf originally occupied by the male (Figure 1:1-2), and entered a *resting sac* beneath this leaf. The female continued to occupy the sac on the next day (Figure 2:21), but the male was not seen at this time. This sac was present when the moulting female was first observed, and it was most likely constructed by her prior to her moult. It may also have been occupied or guarded by the attending male before the female descended to moult. On the next day (14 OCT 2019) the female was also gone.

Brooding (Figure 3). Three instances of of brooding by female *Telamonia dimidiata* are documented here, also from Indraprastha organic farm, Mysuru, Karnataka, India. Each brood sac includes a central, tubular chamber constructed of fine, dense silk fibers that may be occupied by the brooding female with her eggs. An opening at either end of this tube allows the brooding female to exit and to enter the brood sac. Covering this tubular chamber is a tight fabric of larger, mostly parallel (side to side) silk fibers securely anchored on each side to the underside of a broad leaf. Beneath this fabric and around the central tube are many irregular silk fibers within a protected *nursery*, occupied by the young after they hatch. Egg shell fragments and exuviae disappear over time (Figure 3:1) and may provide a food source for the female or her young.



Figure 3 (continued on next page). Female *Telamonia dimidiata* with their broods. **1**, End-on view of female in tubular central chamber surrounded by her brood. Note the well-developed eye pigment of the instar I (hatchling) spiderlings. No egg shell fragments are visible. **2-5**, View of a different brood sac containing spiderlings (2), and female near one entrance of this brood sac accompanied by several instar II (emergent) spiderlings (3-5). These have longer legs than instar I spiderlings.

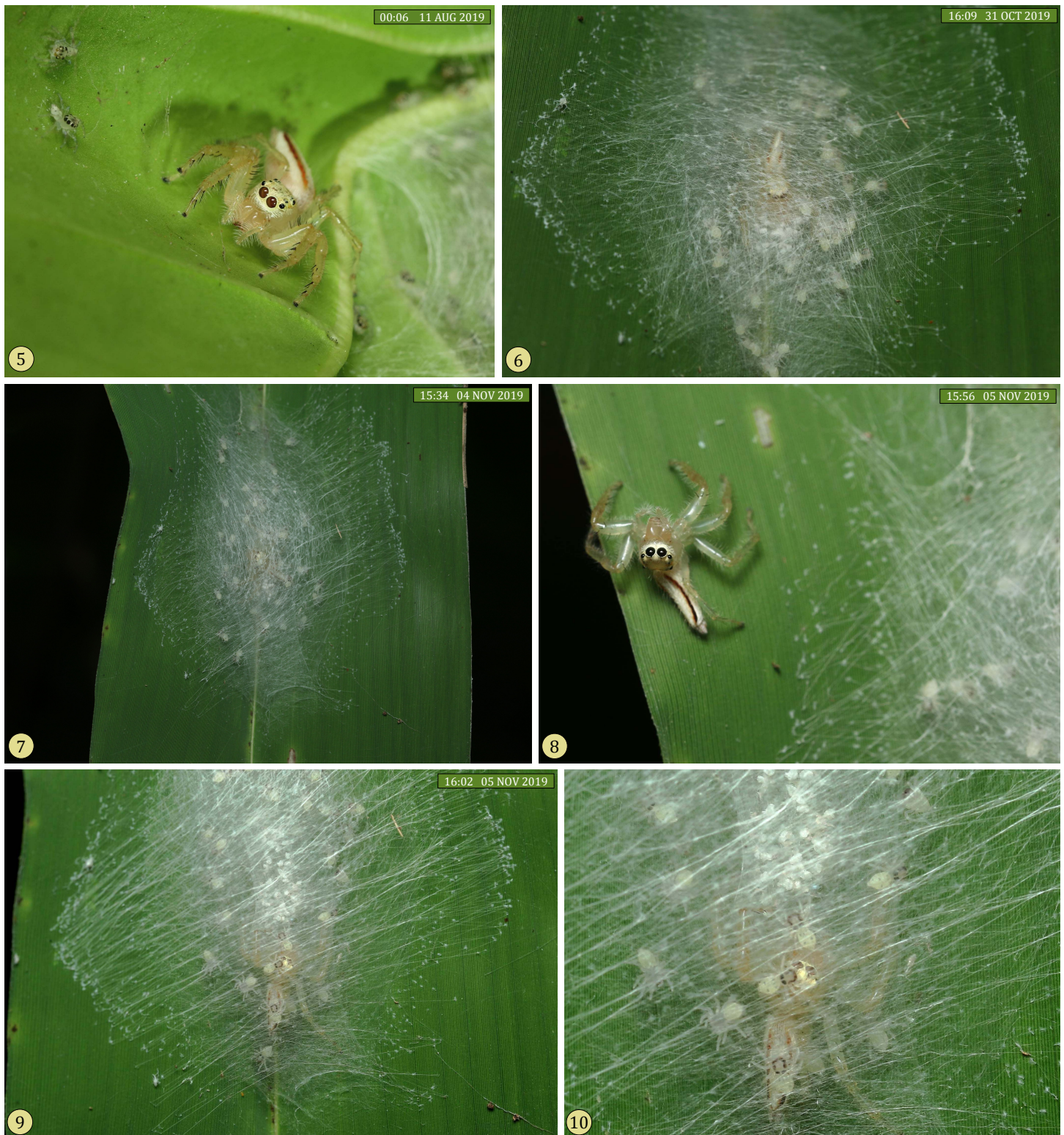


Figure 3 (continued from previous page). Female *Telamonia dimidiata* with their broods. **5**, Female near one entrance to her brood sac (at right). **6-10**, Female attending her brood. **6**, After this initial observation, this female was disturbed and left her sac to jump down. Her dragline was accidentally severed and she was not seen in the vicinity for 3 days. **7**, Female at center of brood sac several days later, after her return to the site. **8**, Female outside of her brood sac, near one of the two entrances (upper right). **9**, Female after return to center of brood sac. Note entrance at the bottom of the sac. **10**, Detail from (9). Note presence of egg shell fragments in the tubular chamber in front of the female (at top, center).

One female left her brood sac when disturbed and was not observed in the vicinity for 3 days, after which she was once again seen tending her brood (Figure 3: 6-10).

Cohabitation and mating. More recently an adult male *Telamonia dimidiata* was observed near the shelter of a penultimate female beneath a leaf of a chili hybiscus, *Hybiscus rosa-sinensis* (Figure 4:1). Two days later the female had molted in her shelter (Figure 4:2), and the male advanced toward the female (Figures 4:3, 5:1-8), mating in her shelter for ~90s (Figures 4:4-5, 5:9-15). After this the male departed (Figure 4:6-9). The female remained in the vicinity of her shelter for two days after mating (Figure 4:7-15).

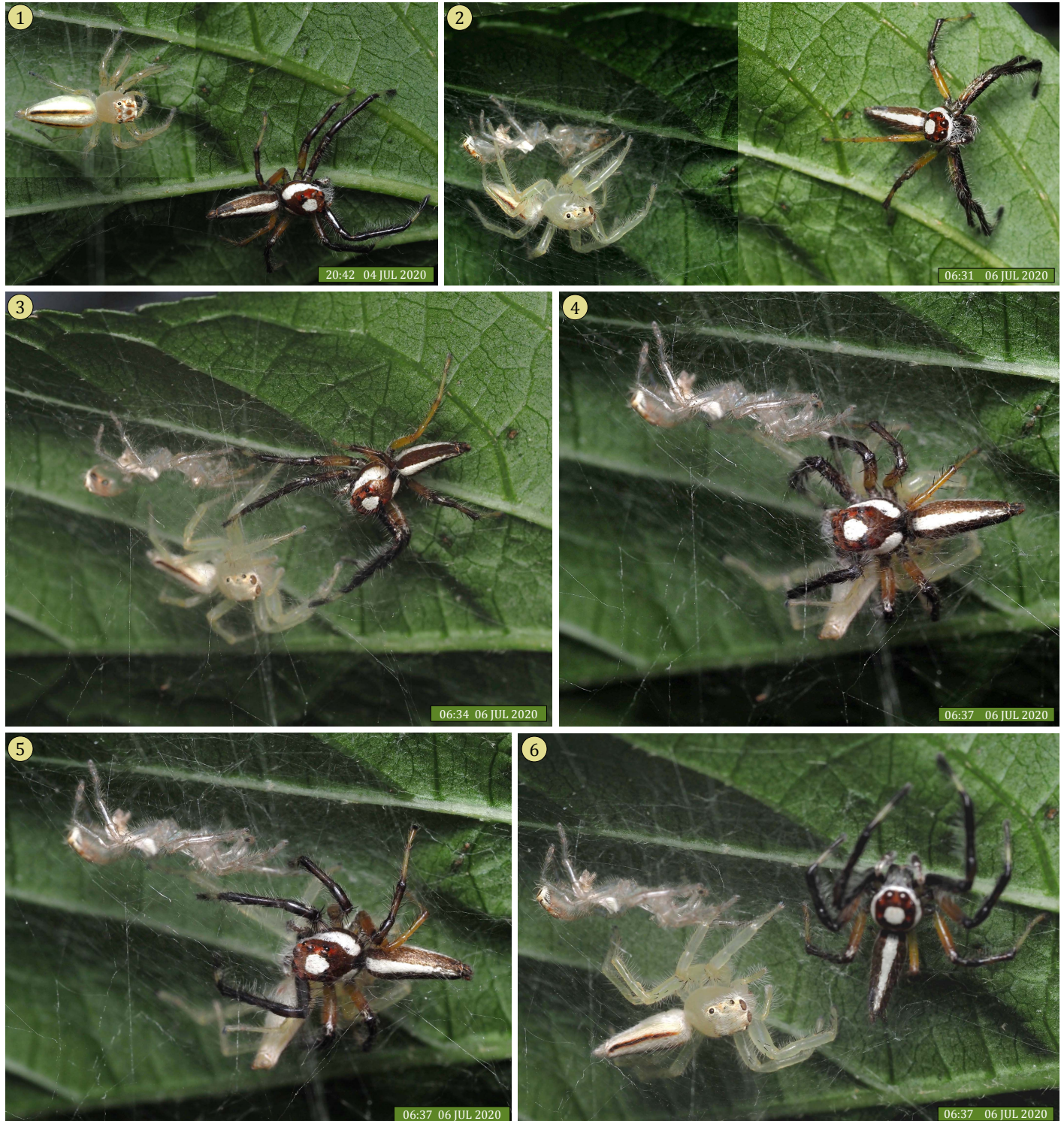


Figure 4 (continued on next page). Cohabiting male and female *Telamonia dimidiata*. 1, Male guarding penultimate female. 2, Male near adult female after molt. 3, Male approaching female. 4-5, Mating. 6, Male near female after mating for ~90s. Some images (1-2) were composited to show both spiders in focus.



Figure 4 (continued from previous page, continued on next page). Cohabiting and mating *Telamonia dimidiata*. 7-9, Male near female after mating. 10-11, Female with exuvium in shelter after mating.



Figure 4 (continued from previous page). Cohabiting male and female *Telamonia dimidiata*. **12**, Female with exuvium in shelter after mating. **13-15**, Female in or near shelter during the two days after mating.



Figure 5 (continued on next page). Sequential but not consecutive frames from a 30fps video clip showing the approach of the male and mating by this cohabiting *Telamonia dimidiata* pair. **1-3**, Approach by male.



Figure 5 (continued from previous page). Sequential but not consecutive frames from a hand-held 30 fps (640 x 360 pixel) video clip of the approach of the male and mating by this cohabiting *Telamonia dimidiata* pair. **4-8**, Approach by male. **9-15**, Mating. The opisthosoma of the female was rotated to allow mating on the left side.

Behavioural flexibility. These examples show that female *Telamonia dimidiata* can moult while suspended on a dragline, or within a shelter, and that males can attend to them in either situation.

Acknowledgments

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